



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,978	09/26/2003	Yehiel Gotkis	LAM2P438	8865

25920 7590 09/13/2005

MARTINE PENILLA & GENCARELLA, LLP  
710 LAKEWAY DRIVE  
SUITE 200  
SUNNYVALE, CA 94085

EXAMINER

DAVIS, OCTAVIA L

ART UNIT PAPER NUMBER

2855

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/671,978

Applicant(s)

GOTKIS ET AL.

Examiner

Octavia Davis

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/20/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 - 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Redeker et al in view of Lehman et al.

Regarding claims 1 – 3, 6 and 10, Redeker et al disclose a method and apparatus for controlling slurry delivery during polishing comprising a wafer carrier 36 supporting a wafer 42 during a planarization process, a computer 144 which generates a thermal map and a stress relief device 41 responsive to a signal received from the computer, the stress relief device relieving the stress on the wafer (See Col. 5, lines 49 – 53 and Col. 4, lines 10 – 61) but does not disclose a sensor configured to detect a signal indicating a stress or a load experienced by the wafer and a plurality of sensors detecting a temperature of the wafer wherein the sensor is embedded in the wafer carrier. However, Lehman et al disclose a CMP system for polishing a sample comprising a wafer carrier 512 that supports a wafer 514 and an eddy current sensor and optical measuring arrangement 500 (See Col. 13, lines 10 – 26) and the sensor arrangement 500 is integrated in the CMP tool which includes the wafer carrier 512 (See Col. 13, lines 18 – 21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Redeker et al according to the teachings of Lehman et al for the

purpose of, utilizing an eddy probe to obtain a measurement of the sample while the sample is being polished (See Lehman et al, Col. 3, lines 13 – 15) and utilizing an optical measurement arrangement to detect a resulting optical beam emanating from the sample (See Lehman et al, Col. 3, lines 37 – 42).

Regarding claim 5, in Redeker et al, the platen 41 is capable of applying a corrective action to relieve a stress (See Col. 3, lines 43 – 54).

Regarding claim 7, in Redeker et al, the computing device 144 includes a signal compensation module 110 (See Col. 5, lines 49 – 67 and Col. 6, lines 1 – 5).

Regarding claims 8 and 11, in Redeker et al, the wafer carrier 36 rotatably supports the substrate 42 over a polishing pad 45 (See Col. 3, lines 55 – 60).

Regarding claim 9, in Redeker et al, the fluid supply system includes a nozzle 72 for delivering the fluid (See Col. 4, lines 10 – 14).

Regarding claims 12 and 13, in Redeker et al, the stress relief device 41 includes a drive motor 46, the motor being capable of reducing one of a rotational speed of the wafer carrier 36 and a linear velocity of the polishing pad 45 (See Col. 3, lines 50 – 55).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redeker et al in view of Lehman et al, as applied to claims 1 – 3 and 5 – 13 above, and further in view of Takahashi et al.

Regarding claim 4, Redeker et al disclose all of the limitations of these claims except for a teaching that a fluid curtain control applies a fluid to smooth the slurry disposed over the polishing pad, and the fluid curtain is applied upstream from where the fluid is applied to the top surface of the slurry. However, Takahashi et al disclose a precision polishing apparatus comprising a fluid curtain 80a (See Col. 9, lines 64 – 67 and Col. 10, lines 1 – 4) provided to smooth the slurry, supplied by a slurry supply device 3b, that is disposed over a polishing pad 3a (See Col. 5, lines 65 - 67 and Col. 6, lines 1 – 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Redeker et al and Lehman et al according to the teachings of Takahashi et al for the purpose of, providing a precision polishing apparatus in which dust may not contaminate devices for effecting a pre-process and a post-process such as the centering and washing of a wafer and the atmosphere of a clean room (See Takahashi et al, Col. 2, lines 31 – 38).

### ***Response to Arguments***

5. Applicant's arguments with respect to these claims have been considered but are moot in view of the new grounds of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the

Art Unit: 2855

mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Conclusion***

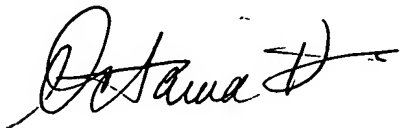
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ono et al (6,634,924) teach a polishing apparatus.

Takahashi et al (6,149,500) teach a precision polishing method using hermetically sealed chambers.

7. Any inquiry concerning this communication should be directed to examiner Octavia Davis at telephone number 571.272.2176. The examiner can normally be reached on Maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Edward Lefkowitz, can be reached on 571.272.2180. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306.



OD/2855

8/23/05



**MAX NOORI**  
**PRIMARY EXAMINER**